Jie Bao

Personal Information

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Education

Fall 2021 - Winter 2023 | **Mila - Université de Montréal**, Montreal, Quebec, Canada
Computer Science Master Student (Part-time)
Data Science, Big Data, Computer Graphics and Reinforcement Learning

Fall 2015 - Winter 2021 | **Concordia University**, Montreal, Quebec, Canada
Thesis: Deep Learning for Turbulence Modeling
Master of Applied Science, GPA: 4.0/4.3
Bachelor of Engineering, Aerospace Engineering

Applied Machine Learning - COMP551 (McGill Campus IUT), *Grade: A*

Computer Skills

Python, Tensorflow, Matlab, Tableau, Linux, SQL, Source code control - Git, Ansys

Work Experience

Current | **Data Engineer**, Airbus
A220 - FlightLink

Analyze and create test reports. Follow-up with clients and suppliers. Data analytics for predictive maintenance using Python(Tensorflow). Build analytical dashboards on A220 fleet performance metrics. Such as fleet availability statistics for other engineering groups.

2019-2021 | **Graduate Student Researcher**, Computational Aerospace Lab
Turbulence Modeling Technique using Machine Learning Techniques

Performed feature quality analysis using algorithm such as Relief. Data cleaning, acquisition and analysis using Matlab and Python. Created an end-to-end ML training pipeline for turbulent production and dissipation values. Achieved over 90% R^2 accuracy. Currently, working on analysing the NACA 0012 airfoil. Check out the progress on website and my other works.

Summer 2018 | **R&D Intern in Advanced Systems**, Bombardier Aerospace
Hydraulic System Modeling using MBSE

Improved the design approach using model-based system engineering for the GLOBAL 7500 hydraulic system using the CAPELLA software (operational architecture down to physical architecture). The approach proved to expose design problems early in the preliminary phase and allows collaboration between the many engineering disciplines. I gained a comprehensive understanding of the hydraulic system. Presented to subject-matter experts during bi-weekly workshops.

Machine Learning Projects

MLP | **Logistic regression and naive Bayes from Scratch**
jiebao.ca/projects/abalones

Data Visualization and implementation of different classification models to determine which is the best for each Data Set. Applied extensively list comprehension and typing in functions for clarity. Source: Ionosphere (Sigillito et al., 1989), Adult (Kohavi, 1996), Abalone (Nash et al., 1994) and Seeds (Charytanowicz et al., 2010) Learned object-oriented programming.

NLP | **Textual Data Classification**
jiebao.ca/projects/IMDB

Cleaning Dataset for NLP context training (Bag of Words, TF-IDF, Stop words, Lemmatization and N-Grams). Hyperparameter tuning with gridsearch with 5-fold cross validation. Applied 7 models SciKit-Learn to obtain a holistic overview of each model's capability. Source: 20newsgroups [Lang,1995] & IMDB movie review dataset [Maas et al., 2011].

CNN | **Computer Vision - CIFAR-10**
jiebao.ca/projects/CIFAR-10

This study presents a Convolutional Neural Networks study to classify image data. Supervised classification models were designed and validated in order to perform an image classification. Experimentations with the following data augmentation techniques: base augmentation (horizontal flips and cropping of edges), Mixup and Cutout on LeNet and ResNet CNN models.Source: CIFAR-10 dataset [Krizhevsky et al, 2009].

Certificate Scholarships

May 2016 — Aircraft Familiarization Training (312h) at L'École National d'Aérotechnique
September 2020 — Concordia University Merit Scholarship
September 2021 — Concordia University Merit Scholarship

Teaching Assistant

2020-2021 | **AERO 490 - Final Year Capstone Aerospace Engineering Design Project**
Supervised by Dr. Jonathan Liscouët

In this role, I assist weekly design reviews alongside the professor (Dr. Liscouet) and it is my responsibility to oversee the design process of the senior students. So far, I have mentored over 25 students during office hours. I guided an industry-standard design approach (ARP 4754) and I shared my engineering best practices. The experience has shown me how systematic methodologies can improve student's confidence in their own design choices and the mentorship further nourished the teacher in me. I also took the initiative to invite guest lecturers from the industry. For example, I organized a panel where Richard Tremblay, the president of CADO, was invited to discuss the operational challenges of an organ transporting drone.

Engineering Competition

Fall 2018 | **Engineering and Computer Science Association Competitions Week**
Senior Design - Concordia University, Montreal, QC

Designed and assembled a remotely controlled car using an Arduino board and other provided material. Awarded 3rd position.

Languages

French:, English:, Chinese (Mandarin): Fluent
German: Basic Knowledge

Interests and Activities

World History, Current World Affairs, Avid Tennis player, Running, Programming